

- 1/11 -

SEQUENCE LISTING

<110> The United States of America, as Represented by the
Secretary, Department of Health and Human Services, et al.

<120> HIV-DEPENDENT EXPRESSION CONSTRUCTS AND USES THEREFOR

<130> 59582-PCT

<150> 60/507,034

<151> 2003-09-28

<160> 3

<170> PatentIn version 3.3

<210> 1

<211> 4418

<212> DNA

<213> Artificial

<220>

<223> HIV-Dependent Expression Construct

<400> 1

tggaagggct aatttggtcc caaaaaagac aagagatcct tgatctgtgg atctaccaca 60
cacaaggcta cttccctgat tggcagaact acacaccagg gccagggatc agatatccac 120
tgacctttgg atggtgcttc aagttagtac cagttgaacc agagcaagta gaagaggcca 180
aataaggaga gaagaacagc ttgttacacc ctatgagcca gcatgggatg gaggaccg 240
agggagaagt attagtgtgg aagtttgaca gcctcctagc atttcgtcac atggcccgag 300
agctgcatcc ggagtactac aaagactgct gacatcgagc tttctacaag ggactttccg 360
ctggggactt tccagggagg tgtggcctgg gcgggactgg ggagtggcga gccctcagat 420
gctacatata agcagctgct ttttgctgt actgggtctc tctgggttaga ccagatctga 480
gcctgggagc tctctggcta actagggaa cactgctta agcctcaata aagcttgct 540
tgagtgtca aagtagtgtg tgcccgtctg ttgtgtgact ctggtaacta gagatccctc 600
agaccctttt agtcagtgtg gaaaatctct agcagtggcg cccgaacagg gacttgaaag 660
cgaaagtaaa gccagaggag atctctcgac gcaggactcg gcttgctgaa gcgcgcacgg 720
caagaggcga ggggcggcga ctggtgagta cgccaaaaat ttgactagc ggaggctaga 780
aggagagaga tgggtgcgag agcgtcagta ttaagcgggg gagaattaga tcgcgatggg 840
aaaaaattcg gttaaggcca gggggaaaga aaaaatataa attaaaacat atagtatggg 900
caagcagggg gctagaacga ttcgcagtta atcctggcct gttagaacaa tcagaaggct 960
gtagacaaat actgggacag ctacaaccat cccttcagac aggatcagaa gaacttagat 1020

- 2 / 11 -

cattatataa tacagtagca accctctatt gtgtgcatca aaggatagag ataaaagaca 1080
ccaaggaagc tttagacaag atagaggaag agcaaaacaa aagtaagacc accgcacagc 1140
aagcgggccgc tctagcccgg gcggatccga attcgcatgc gtcgactcga ggactacaag 1200
gatgacgatg acaaggatta caaagacgac gatgataagg actataagga tgatgacgac 1260
aaataatagc aattcctcga cgactgcata gggttacccc cctctccctc cccccccct 1320
aacgttactg gccgaagccg cttggaataa ggccgggtgtg cgtttgtcta tatgttattt 1380
tccaccatat tgccgtcttt tggcaatgtg agggcccggga aacctggccc tgtcttcttg 1440
acgagcattc ctaggggtct tccccctctc gccaaaggaa tgcaaggtct gttgaatgtc 1500
gtgaaggaag cagttcctct ggaagcttct tgaagacaaa caacgtctgt agcgaccctt 1560
tgcaggcagc ggaaccccc acctggcgac aggtgcctct gcggccaaaa gccacgtgta 1620
taagatacac ctgcaaaggc ggcacaaccc cagtgccacg ttgtgagttg gatagttgtg 1680
gaaagagtca aatggctctc ctcaagcgta ttcaacaagg ggctgaagga tgcccagaag 1740
gtacccatt gtatgggatc tgatctgggg cctcgggtgca catgctttac atgtgtttag 1800
tcgaggttaa aaaacgtcta ggccccccga accacgggga cgtgggtttc ctttgaaaaa 1860
cacgatgata atggccacaa ccatggtgag caagcagatc ctgaagaaca ccggcctgca 1920
ggagatcatg agcttcaagg tgaacctgga gggcggtgtg aacaaccacg tgttcaccat 1980
ggagggctgc ggcaaggga acatcctgtt cggcaaccag ctggtgcaga tccgcgtgac 2040
caagggcgcc ccctgcctc tcgccttcga cctcctgagc cccgccttcc agtacggcaa 2100
ccgcaccttc accaagtacc ccgaggacat cagcgacttc ttcattccaga gcttccccgc 2160
cggcttcgtg tacgagcgca cctgcgcta cgaggacggc ggccgtgtgg agatccgcag 2220
cgacatcaac ctgatcgagg agatgttcgt gtaccgcgtg gagtacaagg gccgcaactt 2280
ccccaacgac ggccccgtga tgaagaagac catcaccggc ctgcagccca gcttcgaggt 2340
gggtgtacatg aacgacggcg tgctggtggg ccaggtgatc ctggtgtacc gcctgaacag 2400
cggcaagttc tacagctgcc acatgcgcac cctgatgaag agcaagggcg tggtgaagga 2460
cttccccgag taccattca tccagcaccg cctggagaag acctacgtgg aggacggcgg 2520
cttcgtggag cagcacgaga ccgccatcgc ccagctgacc agcctgggca agccctggg 2580
cagcctgcac gagtgggtgt aatagggtag caggtaagtg tacccaattc ggccgctgat 2640
cttcagacct ggaggaggag atatgaggga caattggaga agtgaattat ataaatataa 2700
agtagtaaaa attgaaccat taggagtagc accaccaag gcaaagagaa gagtgggtgca 2760

- 3 / 11 -

gagagaaaaa agagcagtgg gaataggagc tttgttcctt gggttcttgg gagcagcagg 2820
aagcactatg ggcgacgct caatgacgct gacggtacag gccagacaat tattgtctgg 2880
tatagtgcag cagcagaaca atttgctgag ggctattgag gcgcaacagc atctgttgca 2940
actcacagtc tggggcatca agcagctcca ggcaagaatc ctggctgtgg aaagatacct 3000
aaaggatcaa cagctcctgg ggatttgggg ttgctctgga aaactcattt gcaccactgc 3060
tgtgccttgg aatgctagtt ggagtaataa atctctggaa cagatttggga atcacacgac 3120
ctggatggag tgggacagag aaattaacaa ttacacaagc ttaatacact ccttaattga 3180
agaatcgcaa aaccagcaag aaaagaatga acaagaatta ttggaattag ataaatgggc 3240
aagtttgtgg aattggttta acataacaaa ttggctgtgg tatataaaat tattcataat 3300
gatagtagga ggcttggttag gtttaagaat agtttttctt gtactttcta tagtgaatag 3360
agttaggcag ggatattcac cattatcgtt tcagaccac ctcccaacc cgaggggacc 3420
cgacaggccc gaaggaatag aagaagaagg tggagagaga gacagagaca gatccattcg 3480
attagtgaac ggatctcgac ggtatcgtat ggggattggg ggcgacgact cctggagccc 3540
gtcagtatcg gcggaattcc agctgagcca gcagcagatg ggggtgggagc agtatctcga 3600
gacctagaaa aacatggagc aatcacaagt agcaatacag cagctaacaa tgctgcttgt 3660
gcctgggctag aagcacaaga ggaggaagag gtgggttttc cagtcacacc tcaggtacct 3720
ttaagaccaa tgacttaciaa ggcagctgta gatcttagcc actttttaaa agaaaagggg 3780
ggactggaag ggctaattca ctcccaaaga agacaagata tccttgatct gtggatctac 3840
cacacacaag gctacttccc tgattggcag aactacacac cagggccagg ggtcagatat 3900
ccactgacct ttggatgggt ctacaagcta gtaccagttg agccagataa ggtagaagag 3960
gccaataaag gagagaacac cagcttggtta caccctgtga gcctgcatgg aatggatgac 4020
cctgagagag aagtgttaga gtggaggttt gacagccgcc tagcatttca tcacgtggcc 4080
cgagagctgc atccggagta cttcaagaac tgctgacatc gagcttgcta caagggactt 4140
tccgtgggg actttccagg gaggcgtggc ctgggcggga ctggggagtg gcgagccctc 4200
agatgctgca tataagcagc tgctttttgc ctgtactggg tctctctggt tagaccagat 4260
ctgagcctgg gagctctctg gctaactagg gaaccactg ctttaagcctc aataaagctt 4320
gccttgagtg cttcaagtag tgtgtgcccg tctgttgtgt gactctggta actagagatc 4380
cctcagacc ttttagtcag tgtggaaaat ctctagca 4418

- 4 / 11 -

<210> 2
<211> 4554
<212> DNA
<213> Artificial

<220>
<223> HIV-Dependent Expression Construct

<400> 2
tggaagggct aatttggtcc caaaaaagac aagagatcct tgatctgtgg atctaccaca 60
cacaaggcta cttccctgat tggcagaact acacaccagg gccagggatc agatatccac 120
tgacctttgg atggtgcttc aagtttagtac cagttgaacc agagcaagta gaagaggcca 180
aataaggaga gaagaacagc ttgttacacc ctatgagcca gcatgggatg gaggaccgag 240
agggagaagt attagtgtgg aagtttgaca gcctcctagc atttcgtcac atggcccag 300
agctgcatcc ggagtactac aaagactgct gacatcgagc tttctacaag ggactttccg 360
ctggggactt tccagggagg tgtggcctgg gcgggactgg ggagtggcga gccctcagat 420
gctacatata agcagctgct ttttgccctgt actgggtctc tctgggttaga ccagatctga 480
gcctgggagc tctctggcta actagggaac ccactgctta agcctcaata aagcttgcc 540
tgagtgtcga aagtagtgtg tgcccgtctg ttgtgtgact ctggtaacta gagatccctc 600
agaccctttt agtcagtgtg gaaaatctct agcagtggcg cccgaacagg gacttgaaag 660
cgaaagtaaa gccagaggag atctctcgac gcaggactcg gcttgctgaa gcgcgcacgg 720
caagaggcga ggggcggcga ctggtgagta cgccaaaaat ttgactagc ggaggctaga 780
aggagagaga tgggtgagag agcgtcagta ttaagcgggg gagaattaga tcgcatggg 840
aaaaaattcg gttaaggcca gggggaaaga aaaaataaa attaaaacat atagtatggg 900
caagcaggga gctagaacga ttgcgagta atcctggcct gttagaaaca tcagaaggct 960
gtagacaaat actgggacag ctacaacctt cccttcagac aggatcagaa gaacttagat 1020
cattatataa tacagtagca accctctatt gtgtgcatca aaggatagag ataaaagaca 1080
ccaaggaagc tttagacaag atagaggaag agcaaaacaa aagtaagacc accgcacagc 1140
aagcgccgc atctcctatg gcaggaagaa gcggagacag cgacgaagag ctcatcagaa 1200
cagtcagact catcaagctt ctctatcaaa gcagtaagta gtacatgtaa tgcaacctat 1260
aatagtagca atagtagcat tagtagtagc acccgggcgg atccgaattc gcatgcgtcg 1320
actcaggac tacaaggatg acgatgacaa ggattacaaa gacgacgatg ataaggacta 1380
taaggatgat gacgacaaat aatagcaatt cctcgacgac tgcatagggt taccgccctc 1440
tccctcccc cccctaacg ttactggccg aagccgcttg gaataaggcc ggtgtgcgtt 1500

- 5 / 11 -

tgtctatatg ttattttcca ccatattgcc gtcttttggc aatgtgaggg cccggaacc 1560
tggccctgtc ttcttgacga gcattcctag gggcttttcc cctctcgcca aaggaatgca 1620
aggtctgttg aatgtcgtga aggaagcagt tcctctggaa gcttcttgaa gacaaacaac 1680
gtctgtagcg acccttttga ggcagcggaa ccccccacct ggcgacaggt gcctctgcgg 1740
ccaaaagcca cgtgtataag atacacctgc aaaggcggca caacccagt gccacgttgt 1800
gagttggata gttgtggaaa gagtcaaag gctctcctca agcgtattca acaaggggct 1860
gaaggatgcc cagaaggtag cccattgtat gggatctgat ctggggcctc ggtgcacatg 1920
ctttacatgt gtttagtcga ggttaaaaaa cgtctaggcc cccgaacca cggggacgtg 1980
gttttccttt gaaaaacacg atgataatgg ccacaacct ggtgagcaag cagatcctga 2040
agaacaccgg cctgcaggag atcatgagct tcaaggtaga cctggagggc gtggtgaaca 2100
accacgtggt caccatggag ggctgcggca agggcaacat cctgttcggc aaccagctgg 2160
tgcagatccg cgtgaccaag ggcgcccccc tgccttcgc cttegacatc ctgagccccg 2220
ccttcagta cggcaaccgc accttcacca agtaccocga ggacatcagc gacttcttca 2280
tccagagctt ccccgccggc ttcgtgtacg agcgcaccct gcgctacgag gacggcggcc 2340
tggtggagat ccgcagcgac atcaacctga tcgaggagat gttcgtgtac cgcgtggagt 2400
acaagggccg caacttcccc aacgacggcc ccgtgatgaa gaagaccatc accggcctgc 2460
agcccagctt cgagggtgtg tacatgaacg acggcgtgct ggtgggccag gtgatcctgg 2520
tgtaccgct gaacagcggc aagttctaca gctgccacat gcgcaccctg atgaagagca 2580
agggcgtggt gaaggacttc cccgagtacc acttcatcca gcaccgcctg gagaagacct 2640
acgtggagga cggcggcttc gtggagcagc acgagaccgc catcgcccag ctgaccagcc 2700
tgggcaagcc cctgggcagc ctgcacgagt ggggtgaata gggtagcagg taagtgtacc 2760
caattcggcc gctgatcttc agacctggag gaggagatat gagggacaat tggagaagtg 2820
aattatataa atataaagta gtaaaaattg aaccattagg agtagcacc accaaggcaa 2880
agagaagagt ggtgcagaga gaaaaaagag cagtgggaat aggagctttg ttccttgagg 2940
tcttgggagc agcaggaagc actatgggag cagcgtcaat gacgctgacg gtacaggcca 3000
gacaattatt gtctgtgata gtgcagcagc agaacaattt gctgagggct attgaggcgc 3060
aacagcatct gttgcaactc acagtctggg gcacaaagca gctccaggca agaatoctgg 3120
ctgtggaaag atacctaaag gatcaacagc tcctggggat ttgggggttc tctggaaaac 3180
tcatttgac cactgctgtg ccttggaatg ctagtggag taataaatct ctggaacaga 3240

- 6 / 11 -

tttggaatca caccgacctgg atggagtggg acagagaaat taacaattac acaagcttaa 3300
tacactcctt aattgaagaa tcgcaaaacc agcaagaaaa gaatgaacaa gaattattgg 3360
aattagataa atgggcaagt ttgtggaatt ggtttaacat aacaaattgg ctgtggtata 3420
taaaattatt cataatgata gtaggaggct tggtaggttt aagaatagtt tttgctgtac 3480
tttctatagt gaatagagtt aggcagggat attcaccatt atcgtttcag acccacctcc 3540
caaccccgag gggacccgac aggccccaag gaatagaaga agaagggtga gagagagaca 3600
gagacagatc cattcgatta gtgaacggat ctgacggta tcgtatgggg attggtggcg 3660
acgactcctg gagcccgta gtatcggcg aattccagct gagccagcag cagatggggg 3720
gggagcagta tctcgagacc tagaaaaaca tggagcaatc acaagtagca atacagcagc 3780
taacaatgct gcttgtgcct ggctagaagc acaagaggag gaagagggtg gttttccagt 3840
cacacctcag gtacctttaa gaccaatgac ttacaaggca gctgtagatc ttagccactt 3900
tttaaaagaa aaggggggac tgggaagggt aattcactcc caaagaagac aagatatcct 3960
tgatctgtgg atctaccaca cacaaggcta cttccctgat tggcagaact acacaccagg 4020
gccaggggtc agatatccac tgacctttgg atggtgctac aagctagtag cagttgagcc 4080
agataaggta gaagaggcca ataaaggaga gaacaccagc ttgttacacc ctgtgagcct 4140
gcatggaatg gatgaccctg agagagaagt gtagagtgg aggtttgaca gccgcctagc 4200
atttcatcac gtggcccgag agctgcatcc ggagtacttc aagaactgct gacatcgagc 4260
ttgctacaag ggactttccg ctggggactt tccaggagg cgtggcctgg gcgggactgg 4320
ggagtggcga gccctcagat gctgcatata agcagctgct ttttgctgt actgggtctc 4380
tctggttaga ccagatctga gcctgggagc tctctggcta actaggggaa ccactgctta 4440
agcctcaata aagcttgctt tgagtgtctc aagtagtgtg tgcccgctg ttgtgtgact 4500
ctggttaacta gagatccctc agaccctttt agtcagtgtg gaaaatctct agca 4554

<210> 3

<211> 7719

<212> DNA

<213> Artificial

<220>

<223> HIV-Dependent Expression Construct

<400> 3

tggaagggtc aatttgggtc caaaaaagac aagagatcct tgatctgtgg atctaccaca 60

cacaaggcta cttccctgat tggcagaact acacaccagg gccagggtac agatatccac 120

- 7 / 11 -

tgacctttgg atggtgcttc aagtttagtac cagttgaacc agagcaagta gaagaggcca 180
aataaggaga gaagaacagc ttgttacacc ctatgagcca gcatgggatg gaggacccgg 240
agggagaagt attagtgtgg aagtttgaca gcctcctagc atttcgtcac atggcccag 300
agctgcatcc ggagtactac aaagactgct gacatcgagc tttctacaag ggactttccg 360
ctggggactt tccagggagg tgtggcctgg gcgggactgg ggagtggcga gccctcagat 420
gctacatata agcagctgct ttttgccctgt actgggtctc tctgggttaga ccagatctga 480
gcctgggagc tctctggcta actagggaaac ccaactgctta agcctcaata aagcttgcct 540
tgagtgtctca aagtagtgtg tgcccgtctg ttgtgtgact ctggtaacta gagatccctc 600
agaccctttt agtcagtgtg gaaaatctct agcagtggcg cccgaacagg gacttgaaag 660
cgaaagtaaa gccagaggag atctctcgac gcaggactcg gcttgctgaa gcgcgcacgg 720
caagaggcga ggggcggcga ctgggtgagta cgccaaaaat tttgactagc ggaggctaga 780
aggagagaga tgggtgcgag agcgtcagta ttaagcgggg gagaattaga tcgcgatggg 840
aaaaaattcg gttaaggcca gggggaaaga aaaaatataa attaaaacat atagtatggg 900
caagcaggga gctagaacga ttcgcagtta atcctggcct gttagaaaca tcagaaggct 960
gtagacaaat actgggacag ctacaacat cccttcagac aggatcagaa gaacttagat 1020
cattatataa tacagtagca accctctatt gtgtgcatca aaggatagag ataaaagaca 1080
ccaaggaagc tttagacaag atagaggaag agcaaaacaa aagtaagacc accgcacagc 1140
aagcggccgc atctcctatg gcaggaagaa gcggagacag cgacgaagag ctcatcagaa 1200
cagtcagact catcaagctt ctctatcaaa gcagtaagta gtacatgtaa tgcaacctat 1260
aatagtagca atagtagcat tagtagtagc acccggggcg atccggccgc gccatgaaag 1320
tgttccgcaa ttccgcaaaa aagaagagga aggtagaaga cccaaggac tttccttcag 1380
aattgctaag ttttttgagt ccaagcttgg cactggccgt cgttttaca cgtcgtgact 1440
gggaaaacc tggcgttacc caacttaatc gccttgacgc acatccccct ttcgccagct 1500
ggcgtaatat cgaagaggcc cgcaccgatc gcccttccca acagttgcgc agcctgaatg 1560
gcgaatggcg ctttgccctgg tttccggcac cagaagcggg gccggaaagc tggctggagt 1620
gcgatcttcc tgaggccgat actgtcgtcg tccctcaaa ctggcagatg cacggttacg 1680
atgcgcccat ctacaccaac gtaacctatc ccattacggg caatccgccg tttgttccca 1740
cggagaatcc gacgggttgt tactcgctca catttaatgt tgatgaaagc tggtacagg 1800
aaggccagac gcgaattatt tttgatggcg ttaactcggc gtttcactcg tgggtgcaacg 1860

- 8 / 11 -

ggcgctgggt cggttacggc caggacagtc gtttgccgtc tgaatttgac ctgagcgcac 1920
ttttacgcgc cggagaaaac cgcctcgcgg tgatgggtgct gcgttggagt gacggcagtt 1980
atctggaaga tcaggatatg tggcggatga gcggcatttt ccgtgacgtc tcgttgctgc 2040
ataaaccgac tacacaaatc agcgatttcc atgttgccac tcgctttaat gatgatttca 2100
gccgcgctgt actggaggct gaagttcaga tgtgcggcga gttgcgtgac tacctacggg 2160
taacagtttc tttatggcag ggtgaaacgc aggtcgccag cggcaccgcg cctttcggcg 2220
gtgaaattat cgatgagcgt ggtgggttatg ccgatcgcgt cacactacgt ctgaacgctc 2280
aaaacccgaa actgtggagc gccgaaatcc cgaatctcta tcgtgcggtg gttgaactgc 2340
acaccgccga cggcacgctg attgaagcag aagcctgcga tgcggtttc cgcgaggtgc 2400
ggattgaaaa tggctctgctg ctgctgaacg gcaagccgtt gctgattcga ggcgttaacc 2460
gtcacgagca tcctcctctg catggtcagg tcatggatga gcagacgatg gtgcaggata 2520
tcctgctgat gaagcagaac aactttaacg ccgtgcgctg ttcgcattat cgaaccatc 2580
cgctgtggta cacgctgtgc gaccgctacg gcctgtatgt ggtggatgaa gccaatattg 2640
aaacccacgg catggtgcc aatgaatcgc tgaccgatga tccgcgctgg ctaccggcga 2700
tgagcgaacg cgtaacgcga atggtgcagc gcgatcgtaa tcaccgcagt gtgatcatct 2760
ggtcgctggg gaatgaatca ggccacggcg ctaatcacga cgcgctgtat cgctggatca 2820
aatctgtcga tccttccgc cgggtgcagt atgaaggcgg cggagccgac accacggcca 2880
ccgatattat ttgcccgatg tacgcgcgcg tggatgaaga ccagcccttc cggctgtgc 2940
cgaaatggtc catcaaaaaa tggctttcgc tacctggaga gacgcgccg ctgatccttt 3000
gcgaatacgc ccacgcgatg ggtaacagtc ttggcggttt cgctaaatac tggcaggcgt 3060
ttcgtcagta tccccgttta cagggcggct tcgtctggga ctgggtggat cagtcgctga 3120
ttaaatatga tgaaaacggc aaccgctggc cggttacgg cggtgatttt ggcgatacgc 3180
cgaacgatcg ccagttctgt atgaacggtc tggcttttgc cgaccgcag ccgcatccag 3240
cgctgacgga agcaaaacac cagcagcagt ttttccagtt ccgtttatcc gggcaaacca 3300
tcgaagtgc cagcgaatac ctgttccgtc atagcgataa cgagctcctg cactggatgg 3360
tggcgctgga tggtaagccg ctggcaagcg gtgaagtgcc tctggatgtc gctccacaag 3420
gtaaacagtt gattgaactg cctgaactac cgcagccgga gagcgccggg caactctggc 3480
tcacagtacg cgtagtgcaa ccgaacgcga ccgatggtc agaagccggg cacatcagcg 3540
cctggcagca gtggcgctctg gcggaaaacc tcagtgtgac gctccccgcc gcgtccacg 3600

- 9 / 11 -

ccatccccgca tctgaccacc agcgaaatgg atttttgcat cgagctgggt aataagcggt 3660
ggcaatttaa ccgccagtca ggctttcttt cacagatgtg gattggcgat aaaaaacaac 3720
tgctgacgcc gctgcgcgat cagttcaccc gtgcaccgct ggataacgac attggcgtaa 3780
gtgaagcgac ccgcattgac cctaacgcct gggtcgaacg ctggaaggcg gcggggcatt 3840
accaggccga agcagcggtt ttgcagtgcg cggcagatac acttgctgat gcggtgctga 3900
ttacgaccgc tcacgcgtgg cagcatcagg ggaaaacctt atttatcagc cggaaaacct 3960
accggattga tggtagtggg caaatggcga ttaccgttga tgttgaagtg gcgagcgata 4020
caccgcatcc ggcgcggatt ggctgaact gccagctggc gcaggtagca gagcgggtaa 4080
actggctcgg attagggccg caagaaaact atcccagccg cttactgcc gcctgttttg 4140
accgctggga tctgccattg tcagacatgt ataccccgta cgtcttcccg agcgaaaacg 4200
gtctgcgctg cgggacgcgc gaattgaatt atggcccaca ccagtggcgc ggcgacttcc 4260
agttcaacat cagccgctac agtcaacagc aactgatgga aaccagccat cgccatctgc 4320
tgcacgcgga agaaggcaca tggctgaata tcgacggttt ccatatgggg attggtggcg 4380
acgactcctg gagcccgta gtatcggcgg aattccagct gagcgccggt cgctaccatt 4440
accagttggg ctggtgtcaa aaataataat aaccgggcag ggtcgactcg aggactacaa 4500
ggatgacgat gacaaggatt acaaagacga cgatgataag gactataagg atgatgacga 4560
caaataatag caattcctcg acgactgcat aggggtaccc cctctccct ccccccccc 4620
taacgttact ggccgaagcc gcttgaata aggcgggtgt gcgtttgtct atatgttatt 4680
ttccaccata ttgccgtctt ttggcaatgt gagggcccg aaacctggcc ctgtcttctt 4740
gacgagcatt cctaggggtc tttccctct cgccaaagga atgcaaggtc tgttgaatgt 4800
cgtgaaggaa gcagttctc tggaaacttc ttgaagacaa acaacgtctg tagcgacct 4860
ttgcaggcag cggaaccccc cacctggcga caggtgcctc tgcggccaaa agccacgtgt 4920
ataagataca cctgcaaagg cggcacaacc ccagtgccac gttgtgagtt ggatagttgt 4980
ggaaagagtc aaatggctct cctcaagcgt attcaacaag gggctgaagg atgccagaa 5040
ggtagcccat tgtatgggat ctgatctggg gcctcggtgc acatgcttta catgtgttta 5100
gtcgaggtta aaaaacgtct agggcccccg aaccacgggg acgtgggttt cctttgaaaa 5160
acacgatgat aatggccaca accatggtga gcaagcagat cctgaagaac accggcctgc 5220
aggagatcat gagcttcaag gtgaacctgg agggcggtgt gaacaaccac gtgttcacca 5280
tggagggctg cggcaagggc aacatcctgt tcggcaacca gctgggtgcag atccgcgtga 5340

- 10 / 11 -

ccaagggcgc cccctgccc ttcgccttcg acatcctgag ccccgcttc cagtacggca 5400
accgcacctt caccaagtac cccgaggaca tcagcgactt cttcatccag agcttccccg 5460
ccggcttcgt gtacgagcgc accctgcgct acgaggacgg cggcctgggtg gagatccgca 5520
gcgacatcaa cctgatcgag gagatgttcg tgtaccgcgt ggagtacaag ggccgcaact 5580
tccccaacga cggccccgtg atgaagaaga ccatcacccg cctgcagccc agcttcgagg 5640
tggtgtacat gaacgacggc gtgctgggtg gccaggtgat cctgggtgtac cgcctgaaca 5700
gcggcaagtt ctacagctgc cacatgcgca ccctgatgaa gagcaagggc gtgggtgaagg 5760
acttccccga gtaccacttc atccagcacc gcctggagaa gacctacgtg gaggacggcg 5820
gcttcgtgga gcagcacgag accgccatcg cccagctgac cagcctgggc aagccccctgg 5880
gcagcctgca cgagtgggtg taatagggta ccaggtaagt gtaccaatt cggccgctga 5940
tcttcagacc tggaggagga gatatgaggg acaattggag aagtgaatta tataaatata 6000
aagtagtaaa aattgaacca ttaggagtag caccaccaa ggcaaagaga agagtgggtgc 6060
agagagaaaa aagagcagtg ggaataggag ctttgttcct tgggttcttg ggagcagcag 6120
gaagcactat gggcgcagcg tcaatgacgc tgacggtaca ggccagacaa ttattgtctg 6180
gtatagtga gcagcagaac aatttctga gggctattga ggcgcaacag catctgttgc 6240
aactcacagt ctggggcatc aagcagctcc aggcaagaat cctggctgtg gaaagatacc 6300
taaaggatca acagctcctg gggatttggg gttgctctgg aaaactcatt tgcaccactg 6360
ctgtgccttg gaatgctagt tggagtaata aatctctgga acagatttgg aatcacacga 6420
cctggatgga gtgggacaga gaaattaaca attacacaag cttaatacac tccttaattg 6480
aagaatcgca aaaccagcaa gaaaagaatg aacaagaatt attggaatta gataaatggg 6540
caagtttctg gaattgggtt aacataacaa attggctgtg gtatataaaa ttattcataa 6600
tgatagtagg aggcttggtg ggtttaagaa tagtttttgc tgtactttct atagtgaata 6660
gagttaggca gggatattca ccattatcgt ttcagacca cctcccaacc ccgaggggac 6720
ccgacaggcc cgaaggaata gaagaagaag gtggagagag agacagagac agatccattc 6780
gattagtga cggatctcga cggatcgtg tggggattgg tggcgacgac tcctggagcc 6840
cgtcagtatc ggcggaattc cagctgagcc agcagcagat ggggtgggag cagtatctcg 6900
agacctagaa aaacatggag caatcacaag tagcaataca gcagctaaca atgtgtctg 6960
tgctgggcta gaagcacaag aggaggaaga ggtgggtttt ccagtcacac ctccaggtacc 7020
tttaagacca atgacttaca aggcagctgt agatcttagc cactttttta aagaaaaggg 7080

- 11 / 11 -

gggactggaa gggctaattc actcccaaag aagacaagat atccttgatc tgtggatcta 7140
ccacacacaa ggctacttcc ctgattggca gaactacaca ccagggccag gggtcagata 7200
tccactgacc tttggatggt gctacaagct agtaccagtt gagccagata aggtagaaga 7260
ggccaataaa ggagagaaca ccagcttggt acaccctgtg agcctgcatg gaatggatga 7320
ccctgagaga gaagtgttag agtggagggt tgacagccgc ctagcatttc atcacgtggc 7380
ccgagagctg catccggagt acttcaagaa ctgctgacat cgagcttgct acaagggact 7440
ttccgctggg gactttccag ggaggcgtgg cctgggcggg actggggagt ggcgagccct 7500
cagatgctgc atataagcag ctgctttttg cctgtactgg gtctctctgg ttagaccaga 7560
tctgagcctg ggagctctct ggctaactag ggaaccact gcttaagcct caataaagct 7620
tgccctgagt gcttcaagta gtgtgtgccc gtctgttggt tgactctggt aactagagat 7680
ccctcagacc cttttagtca gtgtggaaaa tctctagca 7719